

pneumatic systems, subject to the limits of paragraphs (a)(1) through (4) of this section. Unreinforced hoses are limited to a maximum service pressure of 345 kPa (50 psi); reinforced hoses are limited to a maximum service pressure of 1,034 kPa (150 psi).

(4) Nonmetallic flexible hose may be used in lube oil, fuel oil and fluid power systems only where flexibility is required and in lengths not exceeding 30 inches.

(5) Nonmetallic flexible hose must be complete with factory-assembled end fittings requiring no further adjustment of the fittings on the hose, except that field attachable type fittings may be used. Hose end fittings must comply with SAE J1475 (incorporated by reference; see 46 CFR 56.01-2). Field attachable fittings must be installed following the manufacturer's recommended practice. If special equipment is required, such as crimping machines, it must be of the type and design specified by the manufacturer. A hydrostatic test of each hose assembly must be conducted in accordance with § 56.97-5 of this part.

(6) The fire-test procedures of ISO 15540 (incorporated by reference; see 46 CFR 56.01-2) are an acceptable alternative to those procedures of SAE J1942. All other tests of SAE J1942 are still required.

(c) Plastic valves, fittings, and flanges may be used in systems employing plastic pipe. Such valves, fittings, and flanges shall be designed, fabricated, tested, and installed so as to satisfy the intent of the requirements for plastic pipe contained in this section.

(d) If it is desired to use nonmetallic materials other than those specified in this section, a request furnishing the chemical and physical properties of the

material shall be submitted to the Commandant for consideration.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9979, June 17, 1970; CGD 72-104R, 37 FR 14234, July 18, 1972; CGD 73-254, 40 FR 40165, Sept. 2, 1975; CGD 77-140, 54 FR 40613, Oct. 2, 1989; CGD 88-032, 56 FR 35822, July 29, 1991; CGD 83-043, 60 FR 24775, May 10, 1995; CGD 95-072, 60 FR 50462, Sept. 29, 1995; CGD 96-041, 61 FR 50728, Sept. 27, 1996; CGD 95-028, 62 FR 51201, Sept. 30, 1997; USCG-2002-13058, 67 FR 61278, Sept. 30, 2002; USCG-2003-16630, 73 FR 65183, Oct. 31, 2008]

Subpart 56.65—Fabrication, Assembly and Erection

§ 56.65-1 General (replaces 127 through 135).

The requirements for fabrication, assembly and erection in subparts 56.70 through 56.90 shall apply in lieu of 127 through 135.4 of ASME B31.1 (incorporated by reference; see 46 CFR 56.01-2). Those paragraphs reproduced are so noted.

[USCG-2003-16630, 73 FR 65184, Oct. 31, 2008]

§ 56.70-1 General.

(a) The following generally applies to all types of welding, such as stud welding, casting repair welding and all processes of fabrication welding. Where the detailed requirements are not appropriate to a particular process, alternatives must be approved by the Marine Safety Center.

[CGD 77-140, 54 FR 40614, Oct. 2, 1989]

§ 56.70-3 Limitations.

Backing rings. Backing strips used at longitudinal welded joints must be removed.

[CGD 73-254, 40 FR 40165, Sept. 2, 1975]

§ 56.70-5 Material.

(a) *Filler metal.* All filler metal, including consumable insert material, must comply with the requirements of section IX of the ASME Boiler and Pressure Vessel Code (incorporated by reference; see 46 CFR 56.01-2) and 46 CFR 57.02-5.

(b) *Backing rings.* When metallic backing rings are used they shall be made from material of weldable quality compatible with the base metal,

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whether subsequently removed or not. When nonmetallic backing rings are used they shall be of material which does not deleteriously affect either base or weld metal, and shall be removed after welding is completed. Backing rings may be of the consumable insert type, removable ceramic type, of solid or split band type. A ferrous backing ring which becomes a permanent part of the weld shall not exceed 0.05 percent sulphur. If two abutting surfaces are to be welded to a third member used as a backing ring and one or two of the three members are ferritic and the other member or members are austenitic, the satisfactory use of such materials shall be determined by procedure qualifications.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 73-254, 40 FR 40165, Sept. 2, 1975; USCG-2002-13058, 67 FR 61278, Sept. 30, 2002; USCG-2003-16630, 73 FR 65184, Oct. 31, 2008]

§ 56.70-10 Preparation (modifies 127.3).

(a) *Butt welds (reproduces 127.3)(1)—End preparation.* (i) Oxygen or arc cutting is acceptable only if the cut is reasonably smooth and true, and all slag is cleaned from the flame cut surfaces. Discoloration which may remain on the flame cut surface is not considered to be detrimental oxidation.

(ii) Butt-welding end preparation dimensions contained in ASME B16.25 (incorporated by reference; see 46 CFR 56.01-2) or any other end preparation that meets the procedure qualification requirements are acceptable.

(iii) If piping component ends are bored, such boring shall not result in the finished wall thickness after welding being less than the minimum design thickness. Where necessary, weld metal of the appropriate analysis may be deposited on the inside or outside of the piping component to provide sufficient material for machining to insure satisfactory fitting of rings.

(iv) If the piping component ends are upset they may be bored to allow for a completely recessed backing ring, provided the remaining net thickness of the finished ends is not less than the minimum design thickness.

(2) *Cleaning.* Surfaces for welding shall be clean and shall be free from

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paint, oil, rust, scale, or other material which is detrimental to welding.

(3) *Alignment.* The inside diameters of piping components to be joined must be aligned as accurately as practicable within existing commercial tolerances on diameters, wall thicknesses, and out of roundness. Alignment must be preserved during welding. Where ends are to be joined and the internal misalignment exceeds $\frac{1}{16}$ -inch, it is preferred that the component with the wall extending internally be internally trimmed (see Fig. 127.3) so that adjoining internal surfaces are approximately flush. However, this trimming must not reduce a piping component wall thickness below the minimum design thickness and the change in the contour may not exceed 30°.

(4) *Spacing.* The root opening of the joint shall be as given in the procedure specification.

(b) *Fillet welds (modifies 127.4.4).* In making fillet welds, the weld metal must be deposited in such a way as to obtain adequate penetration into the base metal at the root of the weld. Piping components that are to be joined utilizing fillet welds must be prepared in accordance with applicable provisions and requirements of this section. For typical details, see Figures 127.4.4A and 127.4.4C of ASME B31.1 (incorporated by reference; see 46 CFR 56.01-2) and 46 CFR 56.30-10(b). See 46 CFR 56.30-5(d) for additional requirements.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9978, June 17, 1970; CGD 73-254, 40 FR 40165, Sept. 2, 1975; CGD 77-140, 54 FR 40614, Oct. 2, 1989; USCG-2003-16630, 73 FR 65184, Oct. 31, 2008]

§ 56.70-15 Procedure.

(a) *General.* (1) Qualification of the welding procedures to be used, and of the performance of welders and operators, is required, and shall comply with the requirements of part 57 of this subchapter.

(2) No welding shall be done if there is direct impingement of rain, snow, sleet, or high wind on the piping component weldment.

(3) Sections of pipe shall be welded insofar as possible in the fabricating shop. Prior to welding Class I piping or low temperature piping, the fabricator shall request a marine inspector to